

REMARKS

This amendment is in response to the Official Action dated May 24, 2006. In this amendment, Claims 1 and 15 have been amended. Claims 1, 2, 4-8, 12, 14 and 15 remain in the application with Claims 1 and 15 being the only independent claims. Favorable reconsideration, in view of the above amendments and accompanying remarks, is respectfully requested.

As amended, Claim 1 now defines the invention as a disc brake comprising: a caliper; two brake shoes, which are pressable against both sides of a brake disc and which in relation to a peripheral force generated upon application of the brake shoes against the brake disc are supported against a vehicle-fixed carrier, wherein the peripheral force in dependence upon a direction of rotation of the brake disc acts in one of two opposite peripheral force directions; at least one device for at least one of measuring and converting the peripheral force, the device being disposed in a force transmission chain between at least one of the brake shoes and the carrier; and *at least one force transmission member*, which is disposed between at least one of the brake shoes and the device for at least one of measuring and converting the peripheral force and *which is movable relative to the carrier under guidance in a plane parallel to the brake disc such that a transverse force introduced into the force transmission member by the brake shoe is substantially not transmitted to the device for at least one of measuring and converting the peripheral force*, wherein the at least one force transmission member is disposed at one side relative to the caliper in order to take up and transmit the generated peripheral force in only one of the two peripheral force directions. (Emphasis added). None of the cited references, alone or in combination, discloses such a disc brake structure as recited in Claim 1.

Specifically, the English language abstract of JP 61-275049 discloses a disc brake having an anchor member 8 provided with *both* a torque rod section 9 in a shaft form and arm members 10 (i.e., the so-called force transmission member), which *project from the rod section 9* so as to engage with the end surface of the friction pads 5 and 5'. (Emphasis added). As stated in the English language abstract of JP 61-275049 "This torque rod 9 is supported so that it will *never be rotated* around a shaft

by means of a support plate fixed on the body 2.” (Emphasis added). This is clearly evident from the drawings of JP 61-275049 and in particular drawing Fig. 5 where the end 12 of component 11 is shown having a rectangular shape and is disposed in a complimentary shaped opening provided in the torque rod 9. Thus, since in JP 61-275049 the arm members/force transmission members 10 are formed in *one-piece as a rigid part of or extension of the torque rod 9*, (as clearly described above and as shown in sectional drawing Fig. 2), and since JP 61-275049 discloses that the torque rod 9 is supported so that it will *never be rotated* around the shaft, the arm members/force transmission members 10 in JP 61-275049 must be non-rotatably secured to the carrier 2 (i.e., non-movable relative to the carrier), the Examiner is incorrect stating in the Official Action in paragraph 2 that the “force transmission member 10 . . . is movable relative to the carrier as shown in Fig. 5 below by arrows F and T, under guidance in a plane parallel to the brake disc”. Clearly, for the reasons discussed above, the arm members/force transmission member 10 in JP 61-275049 are clearly not “movable relative to the carrier under guidance in a plane parallel to the brake”, as recited in Claim 1.

As stated in the second paragraph on page 2 of the specification, the underlying object of the invention is to provide a disc brake which allows a more exact determination of the peripheral forces that occur during a braking operation. As stated in the third paragraph on page 2 of the specification, this object is achieved according to the invention by providing a force transmission member disposed between one of the brake shoes and the device for measuring and/or converting the peripheral force such that the *force transmission member is moveable under guidance parallel to the brake disc*. As explicitly stated in the fourth paragraph on page 2 of the specification:

“Such an arrangement of the force transmission member guarantees that a transverse force introduced by a brake shoe into the force transmission member acts, not upon the device for measuring and/or converting the peripheral force, but upon a guide provided for the force transmission member. *The device for measuring and/or converting the peripheral force is consequently acted upon exclusively by the peripheral force and is able to measure and/or convert the*

*peripheral force precisely.* The transverse force, on the other hand, is “filtered out” by means of the force transmission member and does not influence the measurement and/or conversion of the peripheral force.” (Emphasis added).

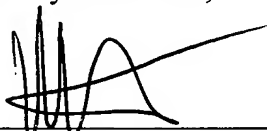
As discussed above, JP 61-275049, by contrast, does not show such an arrangement in which the so-called “force transmission member 10” is “*moveable under guidance* in a plane parallel to the brake disc”. Quite to the contrary, the arm members 10 (i.e. the “force transmission member”) shown in JP 61-275049 is formed as a *rigid extension* of the torque rod 9. Accordingly, the disc brake arrangement in JP 61-275049 is constructed such that *both* peripheral forces and transverse forces imparted by the brake shoe 5 to the arm members 10 are necessarily transmitted to the torque rod 9. In other words, *the torque rod 9* for measuring the force imparted from the brake shoe 5 to the force transmission member 10 *is not isolated from the influence of transverse forces*, as is the case with the present invention. Rather, transverse forces imparted to the arm members 10 by frictional contact with the brake shoes 5 and 5’ are also transmitted to the torque rod and thereby introduce errors into the peripheral force measurements. That is, these transverse forces are not “filtered out” by the arm member 10 and may thus influence the measurements made by the torque rod 9. These are precisely the types of errors in the prior art arrangements that make it difficult to achieve precise control or feedback control of brake systems in the prior art brake systems, as discussed in the first paragraph on page 2 of the specification. For the above reasons, it is clear that JP 61-275049 does not disclose, suggest or teach a disc brake having *at least one force transmission member*, which is disposed between at least one of the brake shoes and the device for at least one of measuring and converting the peripheral force and *which is movable relative to the carrier under guidance in a plane parallel to the brake disc such that a transverse force introduced into the force transmission member by the brake shoe is substantially not transmitted to the device for at least one of measuring and converting the peripheral force*, as recited in Claim 1. (Emphasis added). Accordingly, it is believed that Claim 1, along with dependent Claims 2, 4-8, 12 and 14, are patentable over the cited references.

Independent Claim 15 is directed to a vehicle brake system and has been amended to include similar limitations to that of Claim 1. Thus, for those reasons discussed above with respect to Claim 1, it is believed that Claim 15 is patentable over the cited references.

In view of the above amendments and accompanying remarks, it is believed that the application is in condition for allowance. However, if the Examiner does not believe that the above remarks and amendments place the application in condition for allowance, or if the Examiner has any comments or suggestions, it is requested that the Examiner contact Applicant's attorney at (419) 255-5900 to discuss the application prior to the issuance of an action in this case by the Examiner.

Respectfully submitted,

By



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